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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,908	08/09/2000	Pavel Ivanovich Lazarev	U 012892-1	5282

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07/17/2002

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EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

(07-01)

Office Action Summary	Application No.		Applicant(s)	
	09/601,908		LAZAREV ET AL.	
	Examiner		Art Unit	
	Hoon K Song		2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 678 . 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 4 and 5 are objected to because of the following informalities: Remove "a system" in line 4 for each claim. Change "the period" in line 10 to "a period".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1- 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1-8, the claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors. For example, how small is ultra small? What is ultra small angle? Is it an Angle of the beam or angle between primary beam and scattered beam? How complex is "source-collimator-detector"? What is meant by differing? Differing from where to where?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one ye

Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Clauser (US 5812629).

Regarding claim 1, Clauser teaches a device for small-angle computerized tomography, containing

a source (T) of penetrating radiation,

a collimator (G1 and G2), forming the radiation flow falling on the object in the form of one or several narrow, low-expanding at least in one direction, beams,

a coordinate-sensitive detector (D) performing the registration of coherent radiation scattered on small angles,

a system (CT) for relative displacement of the complex "source-collimator-detector" and the object, and

a computerized system for processing the information obtained from the coordinate-sensitive detector, differing by a spatial filter (G3) put between the object and the coordinate-sensitive detector and separating the radiation scattered by the object on small angles relatively to the direction of the falling beam.

Regarding claim 2, Clauser teaches that differing by a collimator (G1 or G2) executed in the form of a regular periodical structure with radiation-transparent slit-like or channel-like areas alternating with opaque areas (XAL) and overlapping a separate stripe in the object projection; the spatial filter represents a collimator-like regular periodical structure (G3), in which the areas corresponding to the transparent areas of the collimator, are made from a radiation-opaque material (XAL), and the areas overlapping opaque areas of the collimator, are made transparent for penetrating

radiation; on opaque areas of the filter there are detective elements (D) for the measurement of radiation passed through the object; with this the sizes of the channels or the slits and the periodical structures of the collimators must provide the registration of the radiation scattered on ultra-small angles, by the position-sensitive detector (figure 4a and 9).

Regarding claim 3, Clauser teaches that differing by a collimator (G1 or G2) executed in the form of a regular periodical structure with radiation-transparent slit-like or channel-like areas alternating with opaque areas and overlapping a separate stripe in the object projection; the spatial filter (G3) is situated in front of the detector (D) and represents a collimator-like regular periodical structure, in which the areas overlapping opaque areas of the collimator, are made transparent for penetrating radiation, and the areas overlapping transparent areas of the collimator are made of the material, which partially absorbs the radiation and decreases the intensity of the radiation passed through those areas to the level of the radiation scattered on small angles and passed on the coordinate-sensitive detector through transparent areas of the spatial filter.

Regarding claim 4, Clauser teaches a device for small angle computerized tomography (abstract), containing

a source of penetrating radiation,

a collimator (G1 or G2, figure 5) forming the radiation flow falling on the object in the form of one or several narrow, low-expanding, at least in one direction beams,

a detecting system (CT), a system for relative displacement of the complex "source - collimator detector" and the object, and

a computerized system for processing the information obtained from the coordinate-sensitive detector (CT), installed at such a distance from the object and having such spatial sensitivity, which allows to register angled distribution of the intensity on the section of the beam passed through the object with spatial resolution which is more narrow, than the semi-width of the intensity distribution in the beam in the registration plane; with this each beam in formed by the collimator in the object projection is, at least in one direction, more narrow than the area occupied by the controlled substance within the object.

Regarding claim 5, Clauser teaches a device for small angle computerized tomography (abstract) containing

a source (T) of penetrating radiation,

a collimator (G1 or G2) forming the radiation flow falling on the object in the form of one or several narrow, low-expanding, at least in one direction beams,

a detecting system (D),

a system (CT) for relative displacement of the complex "source - collimator detector" and the object, and

a computerized system (CT) for processing the information obtained from the coordinate-sensitive detector (D), differing by a collimator representing a slit-like structure (G1 or G2 or Ph1 or Ph2) , forming a set of narrow, low-expanding beams of radiation in the direction of the investigated object; the registration of the radiation passed through the object is made by the bi-coordinate space-sensitive detector (D) and a block (G3) for information processing connected with the detector; with this the

period of multi-slit structure is chosen based on the condition of providing a period of spatial modulation of the radiation which is at least by two times smaller than the size of the area, occupied by the controlled substance within the object, and the spatial resolution of the detector is smaller than the period of spatial modulation of the radiation in the registration plane (figure 9b).

Regarding claim 6, Clauser teaches that differing by each beam overlapping the whole investigated area of the object in one direction, with this the complex "source-collimator-detector" is executed with the possibility of performing a 360° rotation relatively to the investigated object in the lane perpendicular to the plane of the fan-shaped beam (figure 4).

Regarding claim 7, Clauser teaches that differing by the complex "source-collimator-the beam" executed with the possibility of spiral displacement relatively to the investigated object (CT, figure 4 and figure 5).

Regarding claim 8, Clauser teaches that differing by the collimator forming a beam with point-shaped or a hachure-shaped section, with this the complex "source-collimator-detector" is executed with the possibility of displacement in complex trajectory laying on the surface of a sphere situated around the investigated area of the object (figure 4 and figure 5).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon K Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 703-305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-4858 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon K. Song
July 10, 2002


ROBERT H. KIM
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